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SEP 29 2006

Serial No.: 09/929,716

Attorney Docket No.: 01P14759 US**REMARKS**

Upon entry of the instant Amendment, Claims 1-11 are pending. Claims 1, 4, 6, and 10 have been amended to more particularly point out applicant's invention.

Claims 1-2 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Vaananen et al., U.S. Patent Application No. 2003/0091111 ("Vaananen") in view of deLantremange, U.S. Patent No. 5,970,093 ("deLantremange"). Applicant respectfully submits that the claimed invention is not taught, suggested, or implied by Vaananen or deLantremange, either singly or in combination.

As described in the Specification, aspects of the present invention relate to a transmit filter that substantially reduces intersymbol interference. The generation of the filter coefficients occurs during calibration, for example, at the factory. The filter response is generated by constraining the coefficients in their adaptation at the optimal sampling point and unconstraining them elsewhere. That is, *the error metric is updated only at the optimum sampling point rather than at every sample*. (This is illustrated, e.g., in the Specification in the pseudo-code, in which every L points are skipped until a number (N) is reached).

According to one embodiment, a transmit shaping filter is derived from the complex conjugate of an initial filter and convolving the initial filter with a noise data sequence representative of, or modeling, channel noise and intersymbol interference.

Thus, claim 1 has been amended to recite "updating final shaping filter coefficients at optimal sampling points other than every sample iteratively until the intersymbol interference is at or below a desired level."

As acknowledged in the Official Action, Vaananen does not teach updating final shaping coefficients at optimal sampling points. Instead, deLantremange is relied on to allegedly provide such teaching. However, deLantremange provides that "the self-recovering fractionally-spaced adaptive feedforward filter 32 is fed with signal samples at the twice the symbol rate, while its *coefficients are updated at the symbol rate*." Col.

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12, lines 4-7. Thus, the filter coefficients are not updated at optimal sampling points other than every sample. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 6, 7, 8, and 9 were rejected under 35 U.S.C. 103 as being unpatentable over Segal, U.S. Patent No. 6,647,069 ("Segal"). Claim 6 has been amended to recite "a shaping filter for shaping said coded data, the shaping filter generated by constraining the filter coefficients in their adaptation at the optimal sampling point and not constraining them at points other than optimal sampling points, an initial shaping filter comprising a channel noise model and intersymbol interference shaping filter for minimizing intersymbol interference, said initial shaping filter derived from a matched filter and data sequence."

Segal relates to a system for reducing adjacent channel interference. The receiver in Segal includes "a modified matched filter which performs a convolution of a square-root raised cosine filter 415 and a pre-calculated filter 416 working at N times the symbol rate (e.g., N=2)," (Col. 5, lines 47-50). Thus, in Segal, at the very least, the filter is optimized at every sample point. Thus, Segal does not provide for "constraining the filter coefficients in their adaptation at the optimal sampling point and not constraining them at points other than optimal sampling points," as recited in the claims at issue. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection

Claim 3 has been rejected under 35 U.S.C. 103 as being unpatentable over Vaananen and deLantremange in view of Segal, Vaananen and deLantremange have been discussed above with reference to claims 1 and 2. Segal is relied on for allegedly teaching convolving a spectral shaping filter with its matched filter. Segal has been discussed above with reference to claims 6-9. Like Vaananen and deLantremange, Segal does not teach, suggest, or imply the invention of the underlying claim (i.e., updating final shaping filter coefficients at optimal sampling points other than every sample.). As such, the Examiner is respectfully requested to reconsider and withdraw

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the rejection.

Claims 4, 5, 10 and 11 were rejected under 35 U.S.C. 103 as being unpatentable over Segal, in view of Vaananen and de Lantremange.

Claim 4 has been amended to recite "deriving an optimized shaping filter responsive to said convolving by adaptively minimizing an error metric at points on said initial shaping filter corresponding to optimal sampling points other than every sample thus producing a signal with minimal ISI period;" and claim 10 has been amended to recite "deriving, responsive to said first and second convolving, a shaping filter by minimizing an error metric at points on said initial shaping filter corresponding to an upsampling period, the upsampling period comprising optimal sampling points other than every sampling points."

Segal, Vaananen, and deLantremange have been discussed above. For similar reasons, Applicant believes these claims, too, to be allowable. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

For all of the above reasons, Applicants respectfully submit that the application is in condition for allowance, which allowance is earnestly solicited.

PLEASE MAIL CORRESPONDENCE TO:

Siemens Corporation
Customer No. 28524
Attn: Elsa Keller, Legal Administrator
170 Wood Avenue South
Iselin, NJ 08830

Respectfully submitted,


Anand Sethuraman, Reg. No. 43,351
Attorney(s) for Applicant(s)
Telephone: 650-943-7554
Date: 9/28/06